

Claims

1. A hypodermic syringe comprising:
 - a housing, said housing including a barrel portion and an injectant chamber,
 - 5 the injectant chamber having a smaller cross-sectional area than the barrel portion;
 - a plunger slideably mounted within the barrel portion, comprising a piston which extends into the injectant chamber;
 - a retractable needle assembly; and
 - a stored energy means;
 - 10 configured so that, at the completion of an injection stroke, the piston may become attached to the needle assembly and the stored energy in the stored energy means released to retract the needle assembly into the housing.
2. A hypodermic syringe according to claim 1, wherein the stored energy means
15 is located in the plunger.
3. A hypodermic syringe according to claim 1 or 2, wherein, following needle retraction, residual stored energy is used to retain the needle and plunger within the housing.
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4. A hypodermic syringe according to claim 1, 2 or 3, further comprising non-reversible snap-fitting formations for securely retaining the needle assembly within the syringe after use.
- 25 5. A hypodermic syringe according to any one of the preceding claims, wherein a first part of the needle assembly has a non-circular cross-section and is located in a non-circular aperture of the body, wherein the first part and the aperture co-operate to prevent rotation of the needle assembly relative to the body.
- 30 6. A hypodermic syringe according to any one of the preceding claims, wherein the injectant chamber has a capacity of 3 ml or less.

7. A small capacity hypodermic syringe comprising a housing including an injectant chamber of small cross-sectional area, a retractable needle assembly, a stored energy means for effecting retraction and a plunger, wherein the parameters
5 of a stored energy means are not limited by the dimensions of the injectant chamber.
8. A hypodermic syringe according to claim 7 in which the stored energy means is a spring.
- 10 9. A hypodermic syringe according to claim 7 or 8, wherein during assembly of the syringe, the needle assembly is mounted in the housing with the needle pre-sheathed.
- 15 10. A hypodermic syringe according to claim 7, 8 or 9, wherein the cross-sectional area of the needle assembly is smaller than the cross-sectional area of the injectant chamber and the needle assembly comprises a seal in order to reduce friction during needle retraction.
- 20 11. A hypodermic syringe according to any one of claims 7 to 10 wherein, following needle retraction, residual spring energy is used to retain the needle and plunger within the housing.
- 25 12. A hypodermic syringe according to any one of claims 7 to 11, further comprising non-reversible snap-fitting formations for securely retaining the needle assembly within the syringe after use.
- 30 13. A hypodermic syringe according to one of the preceding claims in which one or more components of the syringe are located and retained by the use of snap-fits during assembly.
14. A hypodermic syringe according to any one of the preceding claims, further comprising a plunger closure piece, said plunger closure piece having an aperture.

15. A hypodermic syringe comprising:
a housing, said housing including an injectant chamber;
a plunger slideably mounted within the housing;
5 a piston mounted on the plunger comprising a first co-operating feature;
a retractable needle assembly comprising a second co-operating feature; and
a stored energy means for effecting the retraction of the needle assembly,
wherein the first and second co-operating features are configured to lock together at
the completion of an injection stroke, said the co-operating features being arranged
10 so as not to impede the complete evacuation of the injectant chamber.

16. A hypodermic syringe according to claim 15, wherein the injectant chamber
has a capacity equal to or less than 3 ml.